



THE NASAL SEPTUM IN RHINOPLASTY: BASIC SEPTOPLASTY TECHNIQUES FWA Otten

Septal corrections form an important step in rhinoplastic surgery. Not only for functional, but also for aesthetic surgery the septum deserves attention. In the past the septum has been submitted to resection of bone and cartilage with sometimes even negative functional and cosmetic consequences. Nowadays, because of its supporting function, one tries in a septoplasty to operate as conservative as possible by preserving and reconstructing the septum.

The nasal septum consists of a posterior bony and an anterior cartilaginous part. *Figure 1* shows a cadaver dissection specimen of the septum. The bony septum has two components: the vomer and the perpendicular plate.



Figure 1: The nasal septum exists of the quadrangular cartilage or anterior cartilaginous septum (1), the perpendicular plate of the ethmoid (2) and the vomer (3)

The anterior cartilaginous part, consisting of a quadrangular cartilage and two upper lateral cartilages, is a very important supporting structure of the nose (*Figures 2a,b*). A straight and firm cartilaginous septum contributes to the contours of the external cartilaginous nose and an efficient airway (*Figures 3a,b*). This means that anatomic malformations of the cartilagi-

nous septum can cause functional and aesthetic complaints.



Figure 2a: The cartilaginous septum and the upper laterals form one cartilaginous structure

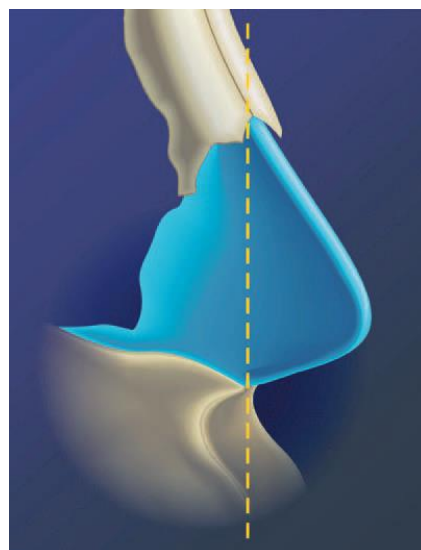


Figure 2b: The septal cartilage right of the dotted line forms the most important supporting component of the septum, determines the contours of the external cartilaginous nose and is important for a patent nasal airway



Figure 3a: Strong nasal profile because of a 'high' anterior cartilaginous septum

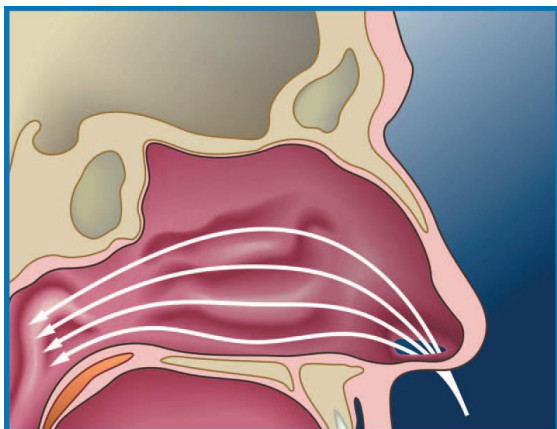


Figure 3b: Cross-section of the nasal cavity to indicate the narrowness of the anterior nose in relation to the posterior nose

Functional complaints are often the result of cartilaginous septal deviations in the anterior nose. This area is the narrowest part of the nose (*Figure 3b*). Small anatomical abnormalities give immediately rise to nasal airway obstruction.

Aesthetic complaints are seen in 'high' and anterior cartilaginous septal deviations resulting in a twisted cartilaginous nasal dorsum, an asymmetric columella or nasal tip (*Figures 19a and 28a*). A cartilaginous septal defect results in a depression of the nasal dorsum (*Figure 38a*), while an overdeveloped dorsal or caudal part of the septum can result respectively in a cartilaginous dorsal hump, a blunt nasolabial angle or a 'hanging columella' (*Figures 25a, 33a*).

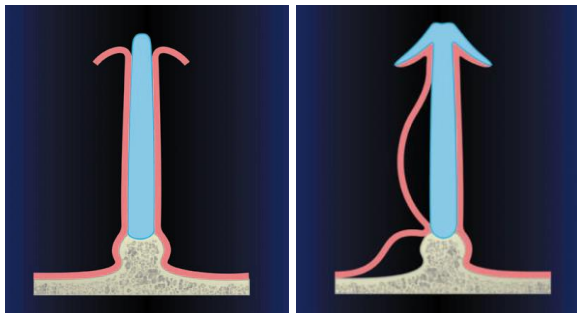
The bony septum has less supporting function than the cartilaginous septum and causes less functional problems as the nose is posteriorly much wider (*Figure 3b*). As a result, the bony septum is easier to handle. Septoplasty frequently is the initial step in rhinoplasty because realignment of the septum as the midline supporting structure of the nose, is essential for successful functional results, nasal tip and bony pyramid surgery.

The standard approach to the septum

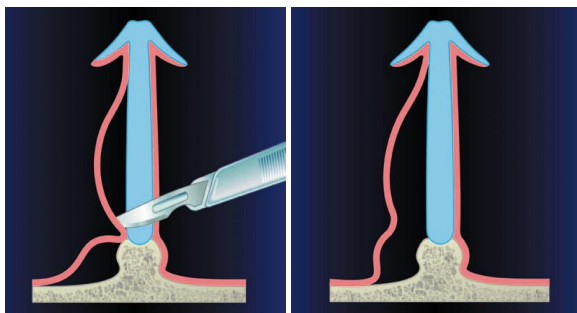
As the cartilaginous septum is an important supporting structure, it must be operated on as conservatively as possible. By dissecting as little as possible, most of the mutual connections of this supporting structure can be left intact with the rest of the nasal skeleton. This goal can be achieved in most of the cases by tunneling the anterior septum only on one side, leaving the contralateral mucoperichondrium intact. The tunnel is made on the side where one has space for handling the instruments. If one has to deal with an inferior deviation of the septum, a lower tunnel is also created on the same side in order to visualize that part of the septum that has to be corrected. After dissecting the cross-fibers of the covering connective tissue at the base of the septum, the anterior and lower tunnel become one compartment, which gives

a good view of the septum and its underlying premaxilla.

The abovementioned procedure is schematically seen in *Figures 4a-d*. Subsequently the septal tunnel is enlarged in a posterior direction by elevating the mucoperiosteal flap of the bony septum on the same side.



Figures 4a,b: The standard approach to the septum: (a) schematic cross-section of the anterior cartilaginous septum; (b) anterior and lower tunnel



Figures 4c,d: (c) Dissection of the basal cross fibers; (d) Anterior and lower tunnels form one compartment for a better view of the nasal septum and supporting premaxilla

By blunt division of the junction between the cartilaginous and bony septum, the mucoperiosteal flap on the contralateral side of the bony septum can also be elevated (*Figure 4e*). By this standard approach the whole septum can be reached. A cadaver dissection illustrates this procedure in *Figures 5a-c*.

Blunt division of the cartilaginous and bony septum ('posterior chondrotomy')

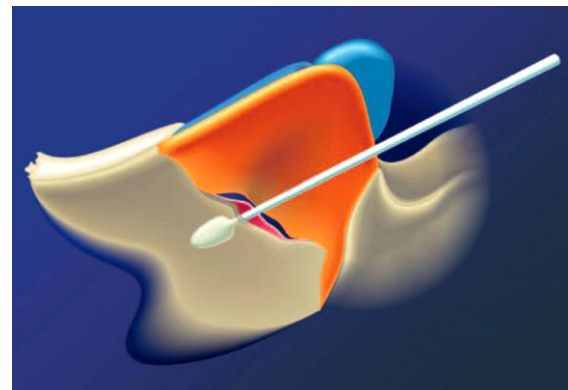
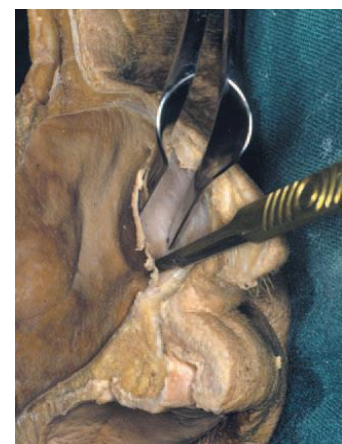


Figure 4e: Posterior chondrotomy with formation of the contralateral posterior septal tunnel along the bony septum. The contralateral anterior mucoperichondrium stays attached to the cartilaginous septum for a better stability



Figure 5a. One-sided septum tunneling

Figure 5b: Dissection of basal cross-fibers



must not be carried out too high because then the cartilaginous septum completely loses the support of the bony septum and pyramid in the important so called 'K(eystone)-area', the highest point of connection between the bony and cartilaginous septum (*Figure 5c*).



Figure 5c: Posterior chondrotomy; white dotted circle indicates the K(stone) – area

This is especially the case when hump removal also has to be done, as with this latter procedure the ‘K-area’ is also weakened and reduced from above (Figure 5d).



Figure 5d: Relationship between K-area and dorsal hump resection

If the ‘K-area’ is destroyed it results in a so-called ‘saddle nose’ (Figure 38a). By leaving the mucoperichondrium attached to the septum on one side one creates in this situation more stability for this supporting structure. After luxating the cartilaginous septum to one side, bony septal deviations can be removed with a biting forceps, leaving the anterosuperior bony septum intact in order to preserve the ‘K-area’. Figure 5e shows this.

The rest of the bony septum does not have an important supportive function. If necessary, crushed pieces of septal bone can be put back at the end of the operation, preventing mucosal atrophy in the long run.



Figure 5e: Area where normally deviated bony parts of the septum are removed

Before or after this correction of the bony septum, the cartilaginous septum can be realigned from the one-sided anterior tunnel in about 90% of cases. Resect as conservatively as possible and reconstruct the cartilage in the midline in order to preserve its supportive function (Figures 5f,g).

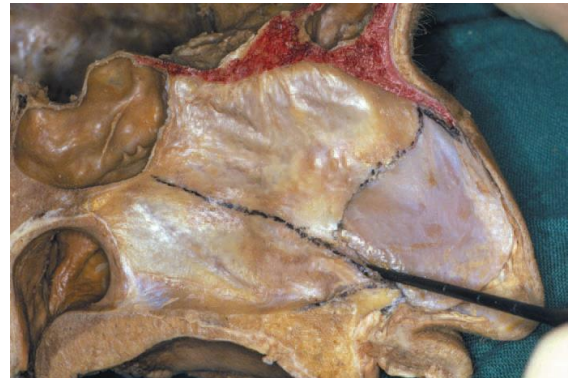


Figure 5f: Luxation of the caudal border of the cartilaginous septum to the one-sided tunnel

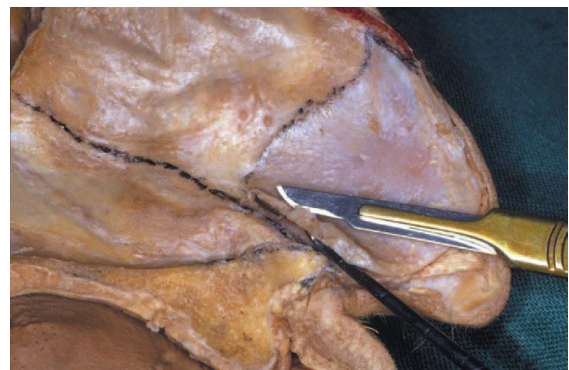


Figure 5g: Resection of a basal strip in cases of a too high and/or luxated septum

Tunneling on both sides with resection of bony and cartilaginous parts of the septum creates the risk that the septum falls into the nose, pivoting around the ‘K-area’ (Figure 6a). This results in a less supporting function of the septum and consequently deprojection of the nasal tip (Figures 6b,c).

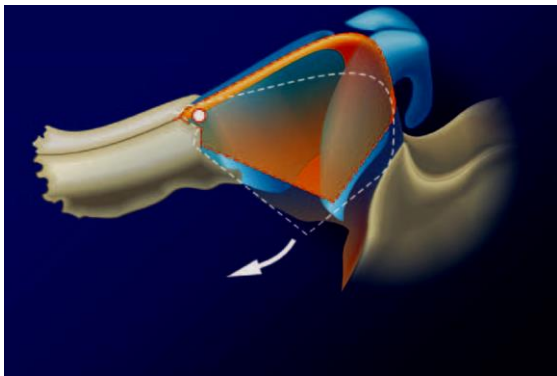


Figure 6a: Schematic illustration of deprojection of the nose as a result of loss of septum support. This can happen after tunneling the septum on both sides, resection of anterior parts of the bony septum and caudal parts of the cartilaginous septum



Figures 6b,c: Patient before septum surgery and postoperative view of the same patient with deprojection of nose as result of loss of septum support after septum surgery

However, one could use this phenomenon in certain cases on purpose as a procedure to deproject the nose. In general, a long

hemitransfixion is made (Figure 7a). In the subperichondrial plane an anterior tunnel is made on the same side (Figure 7b). Spreading the mucoperichondrial flap of the anterior tunnel from the septum with a nasal speculum gives a good view of the cartilaginous septum.

However, by subsequently pulling down the inferior corner of the long hemitransfixion incision with a small hook one creates in practice a much better exposure of the septum (Figure 7a), particularly when the cross-fibers of the connective tissue between the anterior and bottom tunnel are also dissected with a knife under clear and direct vision (Figures 7d,e).



Figure 7a: Hemitransfixion incision line



Figure 7b: Anterior septum tunnel



Figure 7c: Exposure of caudal septum and premaxilla region using a small hook



Figure 7d: Dissection of the covering basal connective tissue



Figure 7e: Exposure of anterior and lower tunnel as one compartment

Functional corrections of the septum

Convex deviated high anterior septum

In this case the too high septum is still in place on the maxillary crest. After creating an anterior septal tunnel with a blunt elevator on the concave side, the firm basal attachments of the mucosa to the caudal septum and maxillary crest are dissected with a knife. After freeing the caudal edge

of the cartilaginous septum and the maxillary crest from their overlying mucosa, the two structures are separated bluntly from each other so that a caudal sliver can be resected from the oversized cartilaginous septum. The mucoperichondrium on the contralateral side of the septum is left in place. Care must be taken not to resect too much in order to preserve the supporting function of the septum (Figures 5f,g and 8a,b,c).

The cartilaginous septum can now be realigned with the midline, stabilized by the attached contralateral mucoperichondrium. There are situations where the septum will hold its curved position (Figures 9a,b). In such cases one can straighten the cartilage by scoring on the concave side, breaking the interlocked stress of the cartilage. Simultaneously the elasticity of the contralateral mucoperichondrium helps to realign the septum (Fig. 9c,d).

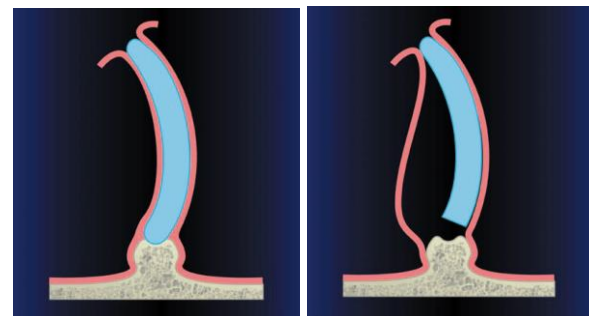
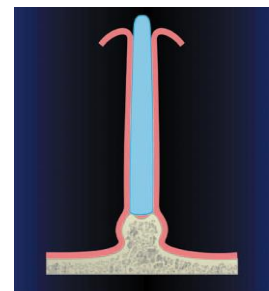
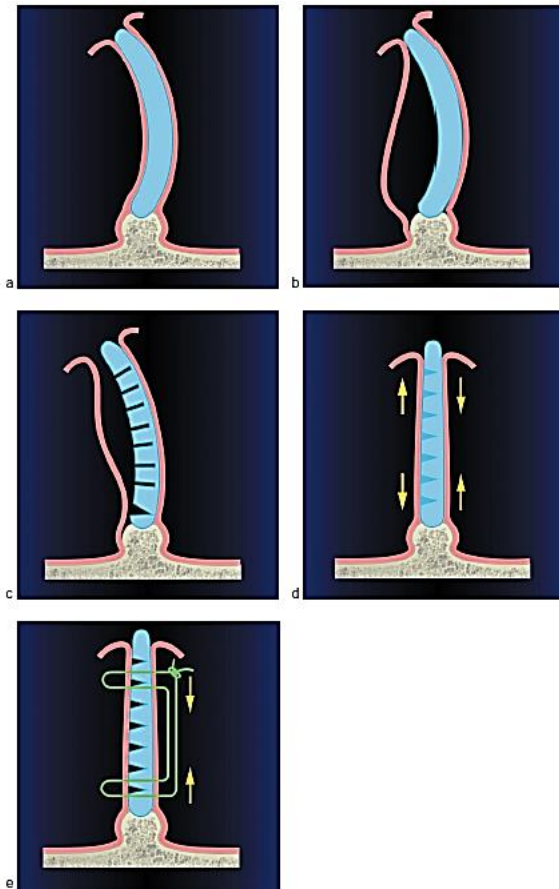


Figure 8a: Convex deviated too high cartilaginous septum; b: Anterior septum tunnel with resection of a basal strip of the too high anterior cartilaginous septum

Figure 8c: Spontaneous straightening of the cartilaginous septum after resection of the basal strip





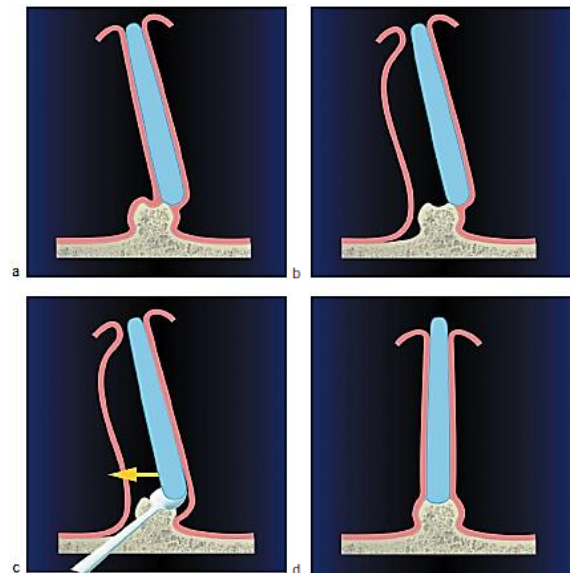
Figures 9a: Curved anterior cartilaginous septum; b: Anterior septum tunnel without spontaneous straightening of septum; c: Scoring of the concave side of septum; d: Straightening of septum as a result of (1) broken interlocked stress in cartilage, and (2) elasticity of contralateral mucoperichondrium

The attached mucoperichondrium on the convex side gives stability to the scored cartilaginous pieces, even if the cartilage has been cut through completely. This situation can be further strengthened by a 4x0 Vicryl through-and-through suture, situated above and beneath the deflection, whilst being knotted on the convex side (Figure 9e).

Luxated anterior septum

In this scenario the septum stands beside the maxillary crest (Figure 10a). Consequently the anterior septal tunnel is for

handling best when made on the contralateral side. Through the junction between the cartilaginous septum and the maxillary crest, the nasal floor on the other side of the nose can be reached by lifting the luxated septum (Figures 5f and 10b,c). With this maneuver, the luxated septum is freed on the caudal side. After elevating the mucoperiosteum from a part of the contralateral nasal floor, the luxated septum can be pulled back and repositioned in the midline on the maxillary crest (Figure 10d).



Figures 10a: Luxated anterior cartilaginous septum; b: Anterior and lower tunnel; c: Freeing and lifting of the anterior septum from the maxillary crest; d: Repositioned septum in the midline

In cases of an oversized luxated cartilaginous septum, the caudal border can be reduced in the same way as the previously mentioned resecting procedure, leaving the mucosa as a stabilizing factor on the contralateral side intact (Figures 11a-d).

The septum can be secured in the midline with a suture around the anterior nasal spine as illustrated in Figure 12.

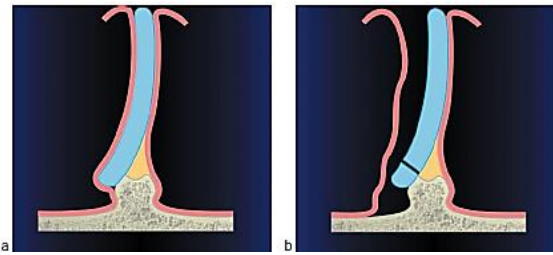


Figure 11a: Luxated too high anterior cartilaginous septum; b: Anterior and lower tunnel

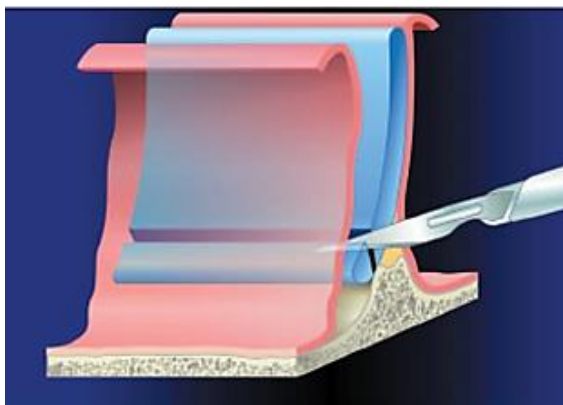


Figure 11c: Dissection of basal strip of septum

Figure 11d: Realignment of septum

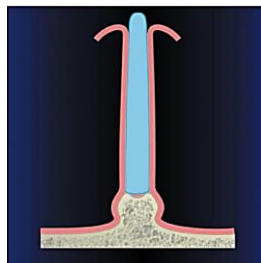
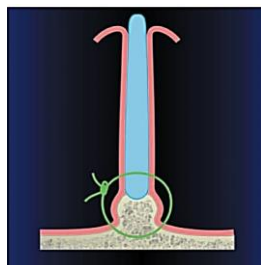


Figure 12: Stabilisation of the cartilaginous septum by suturing the basal septum to the nasal spine



Septal ridge and spur

Most of the time, a septal ridge is situated along the border of the cartilaginous septum and vomer. A ridge often tapers to a spur or spine. This malformation can best

be reached and corrected from the contralateral side like in the luxated septum. After resecting the deviated part of the cartilaginous septum, the bony part of the ridge and spur are freed from the mucosa on the contralateral side, according to the standard approach, and taken out with a biting forceps or fractured into the midline.

Fracture lines of the septum

Fracture lines in the cartilaginous septum can run horizontally or vertically. In most cases the surplus or overlap of cartilage around the fracture lines must be resected to realize realignment of the septum. This procedure is shown in a cadaver dissection in Figure 13.

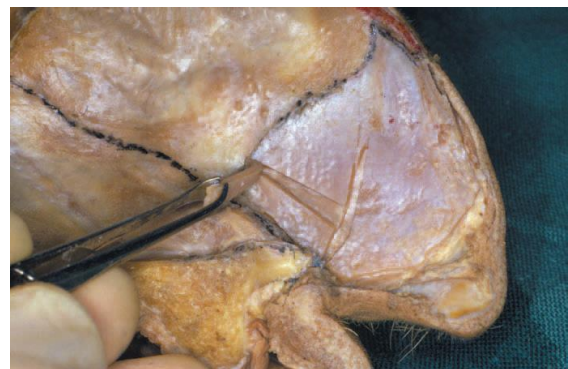


Figure 13: Resection of surplus cartilage in a vertical and horizontal fracture line

The resection is best executed by using a hooked knife through a one-sided anterior septal tunnel, leaving the opposite mucosa intact to serve as a stabilising structure (Figure 14a). The new situation can be further fixed by putting mattress sutures through the area of excision and the fractured pieces of the cartilaginous septum (Figure 14b). In this situation the overlying contralateral mucosa is of great help in realigning this anterior septum and prevents overlap of the fractured pieces. An indication of what could occur after tunneling on both sides is shown in Figures 14c,d.

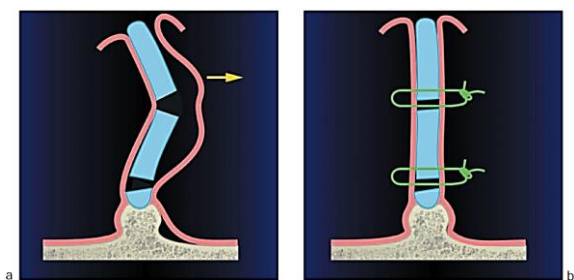
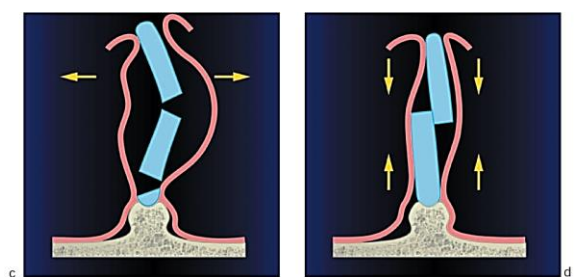


Figure 14a: Resection of fracture lines through a left-sided septum tunnel. Stabilisation of the fracture pieces by means of the connected contralateral mucoperichondrium; b: Realignment of the septum and fixation with through-and-through sutures



Figures 14c,d: Destabilisation of fractured cartilaginous septum after tunneling on both sides

High septal deviations

Very high cartilaginous septal deviations are difficult to correct when they belong to the important supporting K-stone area of the septum (Figure 5c). Resection of these malformations bear the risk of destroying this supporting area. A high deviation of the septum can be carefully realigned with a cartilage crusher (Figures 15a,b). Crushing weakens and straightens the cartilage in this area but leaves its supporting function intact.

Anterior septal defect

An anterior cartilaginous septal defect caused by trauma or previous surgery, results in loss of support of the cartilaginous nose. This results in functional and also cosmetic complaints. The septum has to be reconstructed with a columellar strut.



Figure 15a: Crushing of high septal deviation in the K-area



Figure 15b: Cartilage crusher

Via a relatively posterior performed hemitransfixion incision a pocket is created in the membranous part of the septum and the columella, between the medial crura of the alar cartilages (Figure 16). Be sure to cut all the bridges of scar tissue in this pocket in order to be able to introduce the new columellar strut properly.



Figure 16: Creating a columella pocket with curved scissors

This strut is made of posterior septal or ear cartilage, placed on the anterior nasal spine and fixed with mattress-sutures upon introduction in the columellar pocket (*Figures 17a,b*). The new support of the strut opens the anterior nose in the valve area. *Figures 18a,b* show the effect of this manoeuvre on the appearance of the external nose.

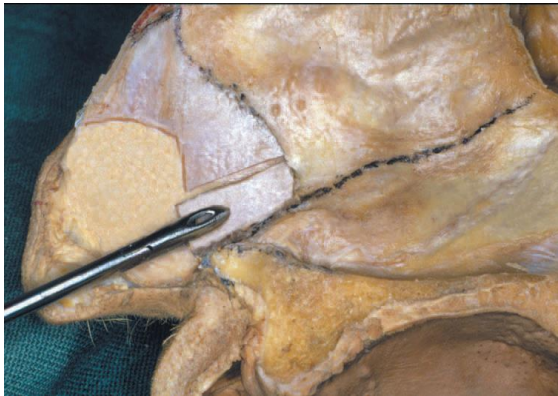


Figure 17a: Harvesting cartilage from posterior cartilaginous septum

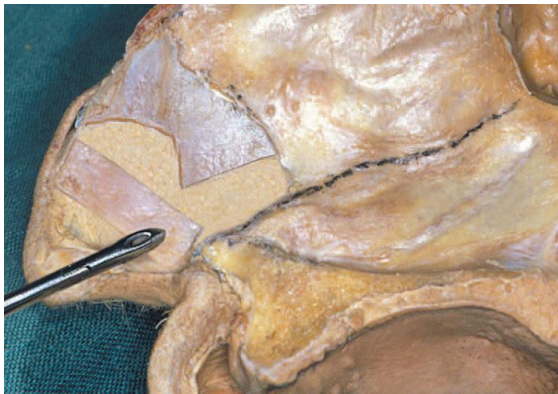


Figure 17b: Reconstruction of anterior cartilaginous septum with columellar strut

Aesthetic corrections of the septum

In rhinoplasty, cosmetic goals can regularly be achieved by corrections of the nasal septum. By looking in greater detail at the septum, one can analyze which part has to be corrected in order to reach a certain aesthetic goal. Some of these situations are described below.

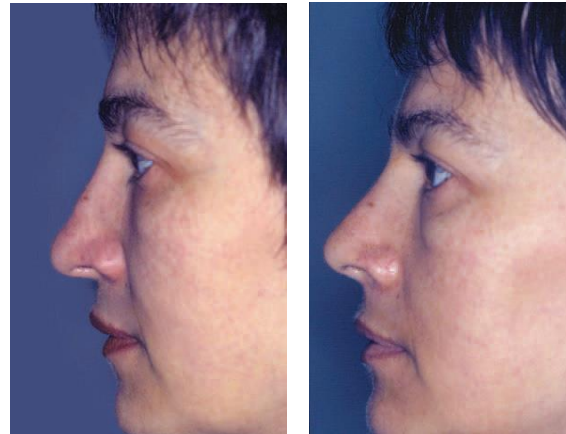


Figure 18a: Preoperative view of a patient with loss of support of the septum as a result of an anterior cartilaginous septal defect; b: Postoperative view of the same patient after reconstruction of the septum, as illustrated in Figures 17a,b

The twisted cartilaginous nasal dorsum

A high deviation of the cartilaginous nasal septum can result in a twisted cartilaginous nasal dorsum on the outside (*Figure 19*).



Figure 19: Twisted cartilaginous dorsum as a result of high cartilaginous septal deviation and postoperative view after correction of septum and upper laterals

In these circumstances the upper lateral cartilages are often asymmetric. Besides a routine septal correction, realignment of the dorsal side of the septum can best be acquired after separating one (on the convex side of the septum) or both of the upper lateral cartilages from the nasal septum. This can carefully be done through

the nasal cavity and cranial nasal mucosa with a knife (*Figure 20a*). The nasal dorsum is palpated at the same time with a forefinger, feeling the knife coming through the cartilage underneath the nasal skin (*Figure 20b*).

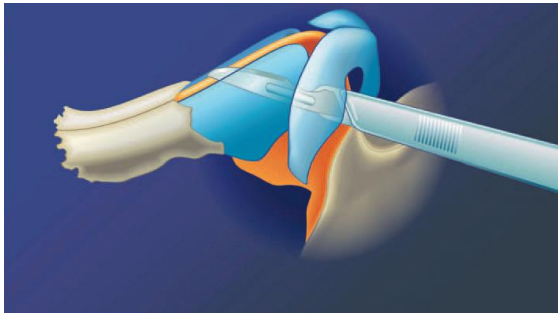


Figure 20a: Separation of the right upper lateral cartilage from the septum, directly through the nasal cavity



Figure 20b: Palpating with a finger on the dorsum of the nose to feel the knife coming through the upper lateral cartilage underneath the nasal skin

The upper laterals realign automatically along the straightened septum. Suturing is not necessary. The effect of this procedure is outlined in *Figures 21a-g*. If necessary, the skin of the nasal dorsum can be elevated through a hemitransfixion incision (with scissors over the anterior septal angle) in order to free the dorsal side of the septum from its restrictive attachments to the skin (*Figures 22a, b*).

a

b

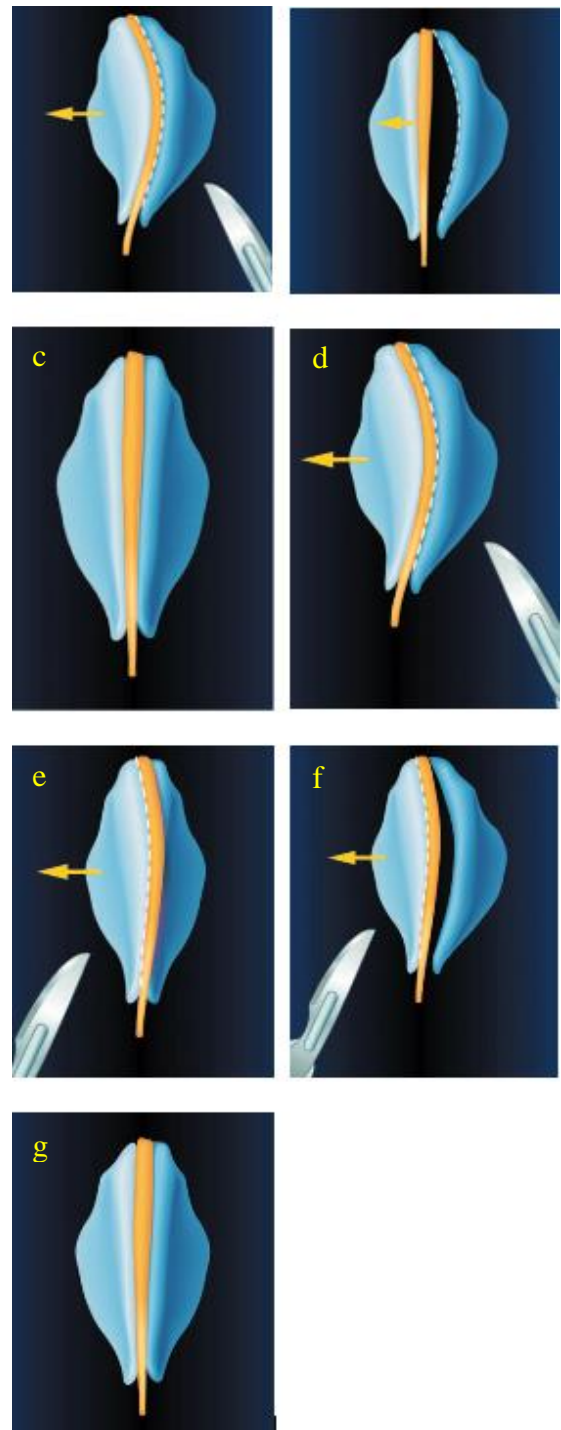


Figure 21a. Twisted dorsal septum and asymmetric upper laterals; b,c: Realignment of the septum after separating the left upper lateral from the septum; d-g: Sometimes both upper laterals have to be separated to realign the dorsal septum



Figures 22a,b: Undermining of the dorsal nasal skin through the hemitransfixion incision in order to straighten the dorsal septum

These manoeuvres help to straighten the cartilaginous dorsum of the nose, as can be seen in *Figure 19b*. An alternative is introducing spreader grafts between the septum and the upper laterals by means of an open approach.

Nasal tip rotation

In case of downward rotation of the nasal tip, this is frequently the result of a too prominent anterior septal angle and adjacent caudal edge of the cartilaginous septum (*Figure 23a*). Palpating with thumb and forefinger helps to diagnose this variation of septal anatomy. It can be corrected by merely resecting cartilage and overlying mucosa of the anterior septal angle and the adjacent caudal edge (*Figures 24a,b*). After this simple procedure the nasal tip automatically rotates upwards as a result of the elasticity of the dorsal skin

(*Figure 23b*). Then the defect is closed primarily with resorbable sutures.



Figure 23a: Patient with prominent anterior septal angle and adjacent caudal edge of cartilaginous septum (and hump); b: Postoperative view after resecting anterior septal angle (and hump). Notice upward rotation of the nasal tip by this procedure

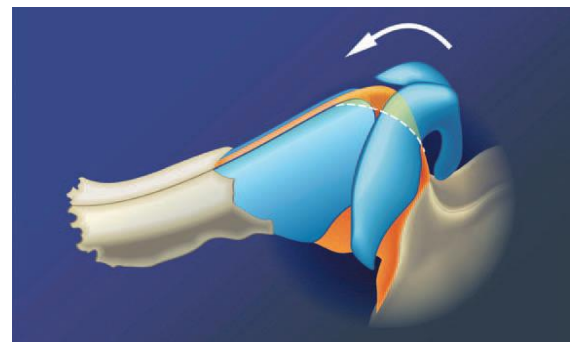


Figure 24a: Area of anterior septal angle resection. This resection results in an upward rotation of the nasal tip

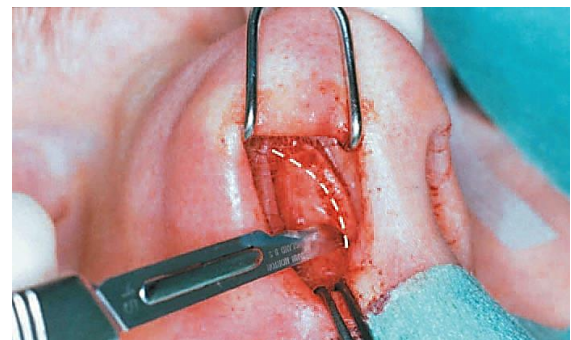


Figure 24b: Resection of anterior septal angle. The overlying mucosa is resected in the same amount as the cartilage

Correction of the nasolabial angle

A prominent caudal border of the septum near the nasal spine often forms a blunt nasolabial angle (*Figure 25a*). As above, palpation helps to discover the underlying anatomy. By resecting this part of the caudal border with the overlying mucosa, in combination with a nasal spine reduction (if necessary), the nasolabial angle can be reduced (*Figures 26a,b*). *Figure 25b* shows the result of this procedure.



Figure 25a: Preoperative view of patient with blunt nasolabial angle as a result of a too prominent caudal border of the septum and nasal spine; b. Postoperative view after resection of caudal border of septum and nasal spine, as well as frontal angle reconstruction

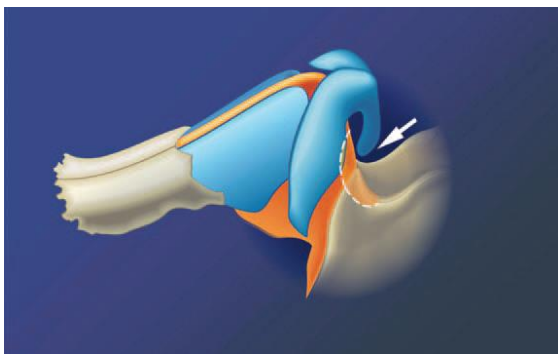


Figure 26a: Area of septum and nasal spine resection for correction of blunt nasolabial angle

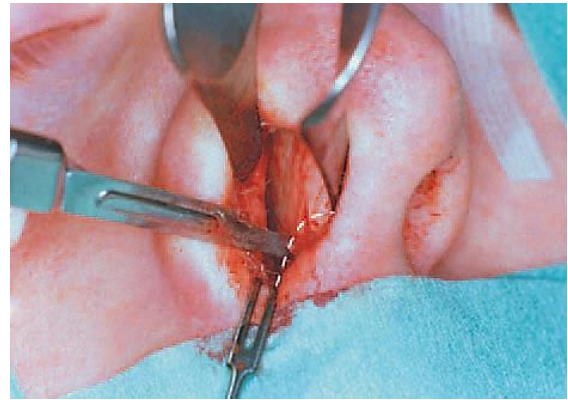


Figure 26b: Resection of septum, as illustrated in Figure 26a, during surgery. The overlying mucosa is resected in the same amount as the cartilage

Overdeveloped 'hanging' columella

In this situation (sometimes in combination with large medial crura of the alar cartilages) the whole caudal septal edge is often too prominent. This malformation can be corrected by means of a complete transfixion incision. This way, the whole caudal edge of the cartilaginous septum can be trimmed together with the overlying mucoperichondrium (*Figures 27a,b*). By suturing the defect primarily, the too prominent columella can retract in the desired position.

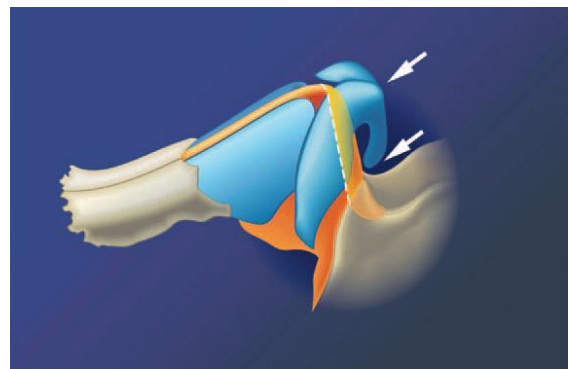


Figure 27a: Resection of the total caudal edge of the septum in case of an overdeveloped 'hanging' columella

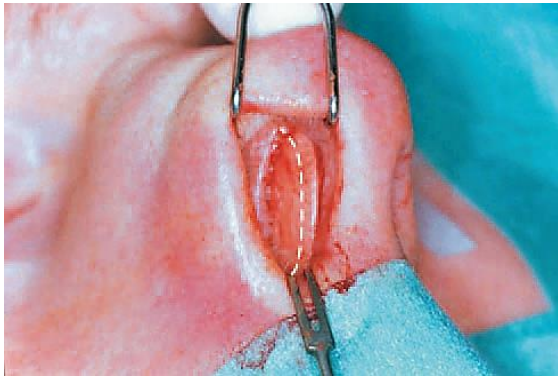


Figure 27b: The same situation as in Figure 27a during surgery. The overlying mucosa is resected in the same amount as the cartilage

Deviation of caudal edge of septum

When a deviation of the caudal edge of the septum is present, the result is a distorted columella and occasionally an obstructed nostril on the deviated side (*Figure 28a*). If the caudal septum is too long, the deviated rim is simply resected with its overlying mucosa (*Figure 29*). Having a normal length, the septal cartilage will have to be scored on the concave side in order to reposition it in the midline, after creating a columellar pocket (*Figure 28b*). See *The anterior septal defect for creating a columellar pocket (Figure 16)*.

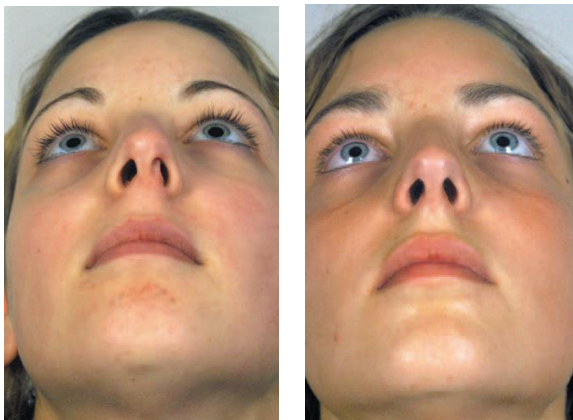


Figure 28a: Preoperative view of a patient with a deviation of the caudal edge of the cartilaginous septum. Notice the partly obstructed left nostril; b: Postoperative view

of the same patient after correction of the caudal septum

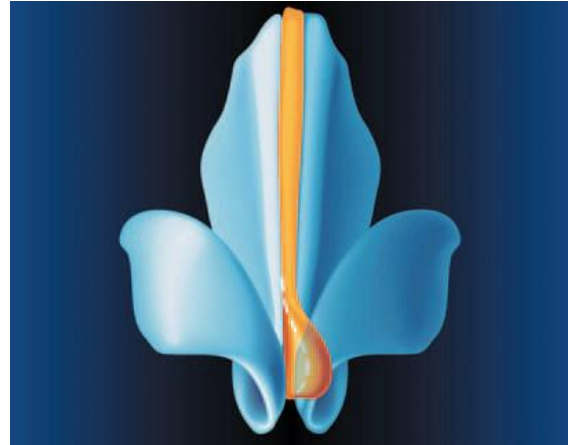


Figure 29: Area of resection or scoring of the septum in case of a caudal septal deviation, as illustrated in Figures 28a, b.

In an exceptional situation even the nasal tip can be asymmetric as a result of a strong deviation of the caudal septum. In these circumstances the whole cartilaginous septum is freed from overlying mucosa on both sides, resected, reconstructed and put back, fixing it with mattress-sutures, in order to prevent columellar retraction (*Figures 30a,b*).

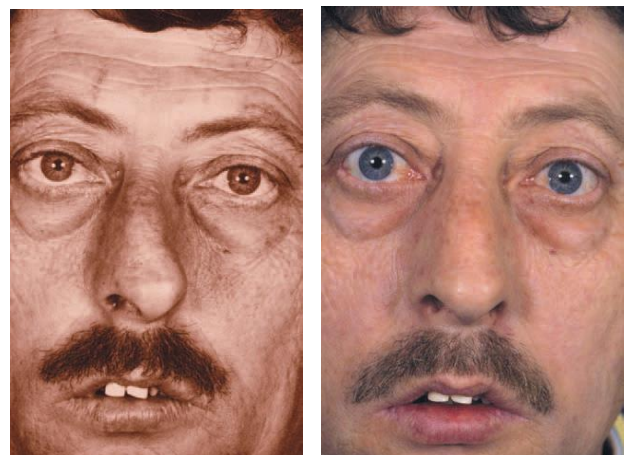


Figure 30a: Preoperative view of patient with a nasal tip asymmetry as a result of severe deviation of anterior cartilaginous septum. b. Postoperative view after reconstruction of the septum. No nasal tip surgery was performed

Deviation of the nasal base

When the septum is strongly deviated and luxated at its caudal edge, complete realignment of the septum is not always possible. This because the whole nasal base is occasionally asymmetric (*Figure 31a*). In these circumstances the area between the skin of the nasal base (and part of the upper lip) and the musculus orbicularis oris must be undermined to completely straighten the septum and the base of the nose. Undermining of this so-called 'magic plain' is easily realised by spreading the tissue bluntly with slightly curved scissors through the hemitransfixion incision (*Figures 32a,b*). The result of this manoeuvre is illustrated in *Figure 31b*.



Figure 31a: Patient with deviated caudal septum and an asymmetric nasal base; b: Patient after septal correction and undermining of the nasal base or 'magic plane' (see Figures 32a, b)



Figure 32a: Introduction of scissors into the nasal base or 'magic plane' via the caudal part of the hemitransfixion; b: The dotted line indicates the 'magic plane'. This is the area that must be undermined during a septum correction, to realign an asymmetric nasal base

Cartilaginous nasal hump

A cartilaginous nasal hump is the result of an overdeveloped cartilaginous dorsal septum (*Figure 33a*). To correct this situation the dorsal side of the quadrangular cartilage must be resected (*Figure 34*). This in itself is a correction of the septum. It is difficult to judge the precise amount and place of reduction. Frequently also the anterior septal angle must be trimmed to prevent a so-called 'polly beak' (*Figure 33b*).



Figure 33a: Preoperative view of patient with bony and cartilaginous hump. The cartilaginous part of the hump comprises of septum cartilage; b. Postoperative polly

beak (yellow arrow) after hump removal. This is the result of too little dorsal cartilaginous septum reduction

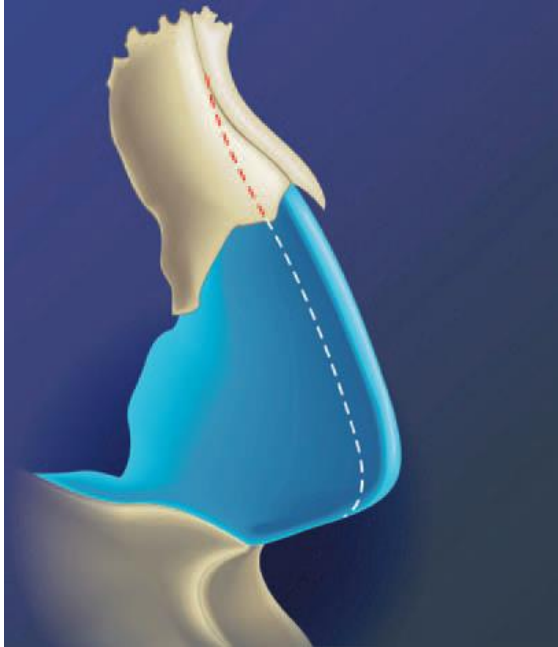


Figure 34: The dotted line indicates the correct area of dorsal (cartilaginous septum) reduction that should have been done in the patient of Figure 33a. Notice that also the anterior septal angle must be resected

In an endonasal procedure the best approach to reach this goal is a transfixion incision in combination with an intercartilaginous incision on both sides. After freeing the anterior septal angle and cartilaginous dorsum the exact amount of dorsal cartilage that has to be reduced can be estimated (Figure 35). This is essential for a good aesthetic result of the nasal profile (Figures 36a,b).

Cartilaginous nasal dorsal defect, 'the saddle nose'

Small defects of the cartilaginous dorsum can be reconstructed with small layers of patients' own cartilage in the defect of the dorsum (Figures 37a,b). Through an endonasal incision the graft is introduced in the



Figure 35: Resection of the anterior septal angle in case of a cartilaginous hump removal during surgery. Precise judgement of cartilage resection is essential for a good result of hump removal



Figure 36a: Preoperative view of a patient with a bony cartilaginous dorsal hump ('tension nose'); b: Postoperative view of the same patient of Figure 36a after correct resection of the hump (with the anterior septal angle). Note the indirect change of the ala, the nostril and the nasal tip (reduction) as a result of this manoeuvre

area of the defect into a small pocket, to prevent displacement of the graft on the dorsum. In case of a collapse of the cartilaginous nasal dorsum (Figure 38), the total septum must be reconstructed. For this correction, an external approach is often indicated.



Figure 37a: Patient with a small defect of the dorsum of the cartilaginous septum. Preoperative view; b. Postoperative view of the same patient after filling the defect with the patient's own cartilage

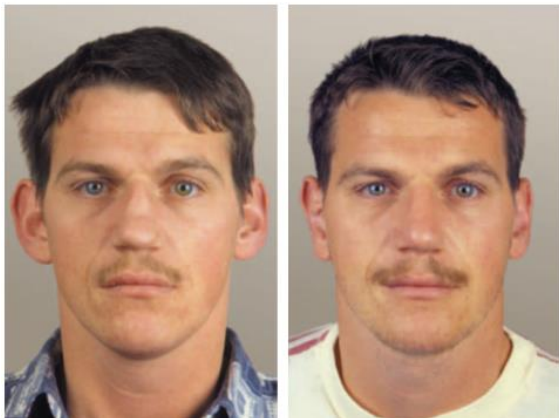


Figure 38: Patient with a severe 'saddle nose' after over-resection of septal cartilage during surgery (left); Postoperative view after septum reconstruction with patient's own ear cartilage. Note also that otoplasty on both sides has been done

The procedure is schematically seen in *Figures 39a,b*. Posterior septal cartilage, bony septum, ear- or rib-cartilage are the materials one can choose from. Reconstruction gives a strong aesthetic change of the nose and face as a whole. *Figure 38* shows the result of this procedure in a patient's nose that has been reconstructed with cartilage taken from his protruding ears. In the same operation an otoplasty has been performed on both sides.

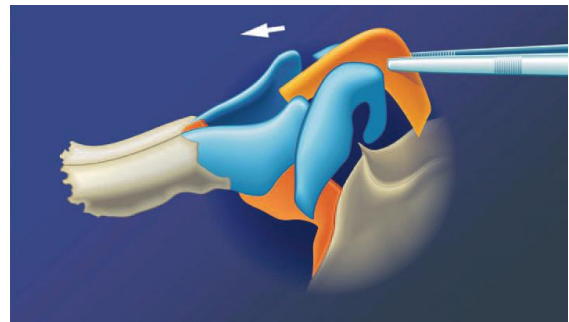


Figure 39a: Schematic reconstruction of anterior cartilaginous septum with cartilage transplant

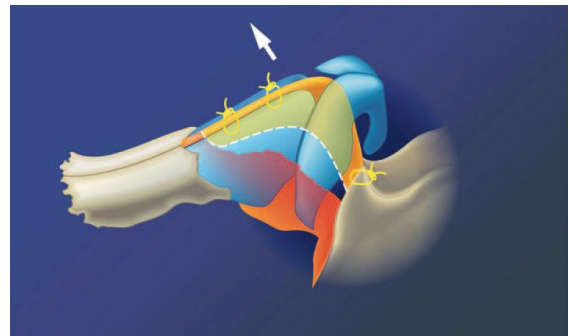


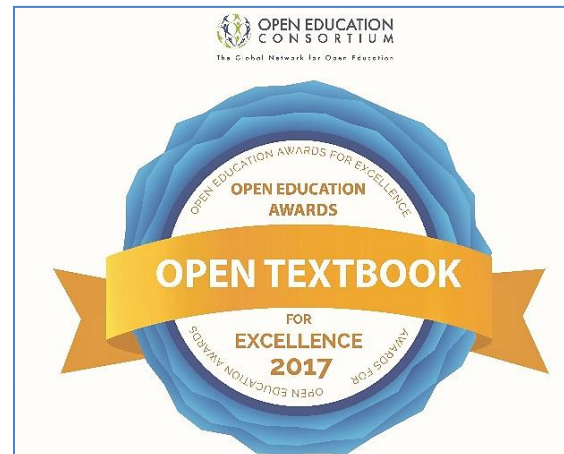
Figure 39b: Fixed cartilage transplant; note the change of the dorsal profile of the nose

Postoperative management

If necessary, after one of these procedures the anterior cartilaginous septum can be sutured to the nasal spine (*Figure 12*) to accomplish secure realignment of the anterior septum. Optionally, the elevated mucoperichondrial flap can be reattached to the septum by through-and-through sutures in the cartilaginous septum. This

prevents septal haematoma and creates stability. Nasal tampons can stay in situ for 24 - 48 hours. Routine antibiotic treatment is not necessary.

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